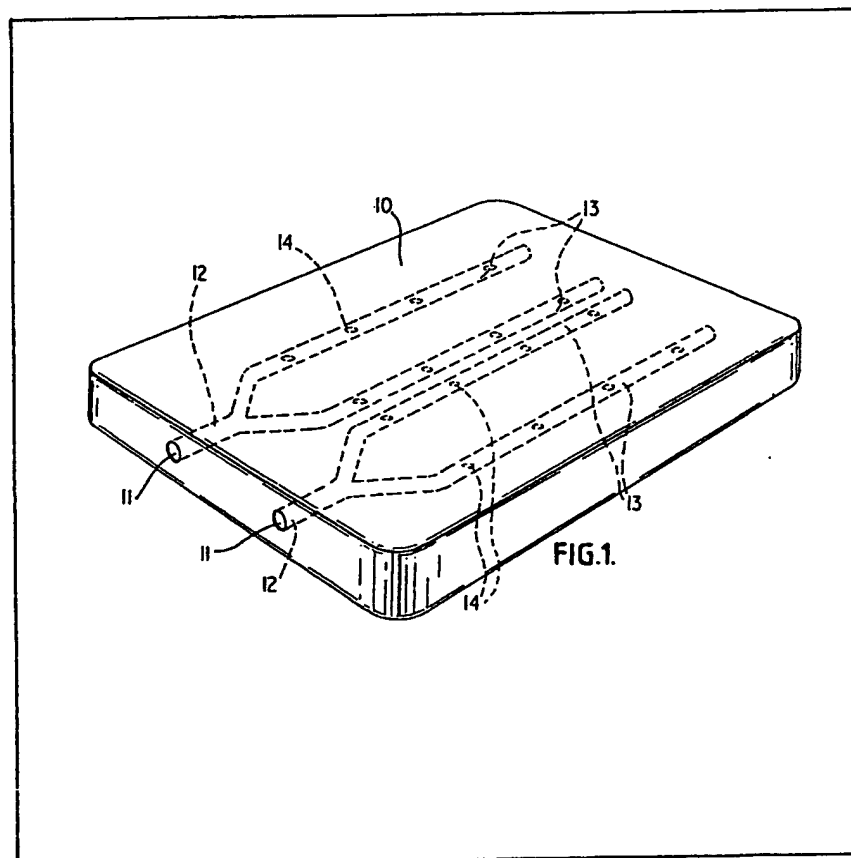


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(54) Mattress heaters

(57) A mattress heating device comprises means to provide a supply of heated air and means to direct the heated air into the mattress 10, to heat it. The means comprise ducts 12, 13 having inlets 11 and outlets 14. Other embodiments involve the use of ducts for blowing air aims the top of the mattress and a porous cover for the bed.



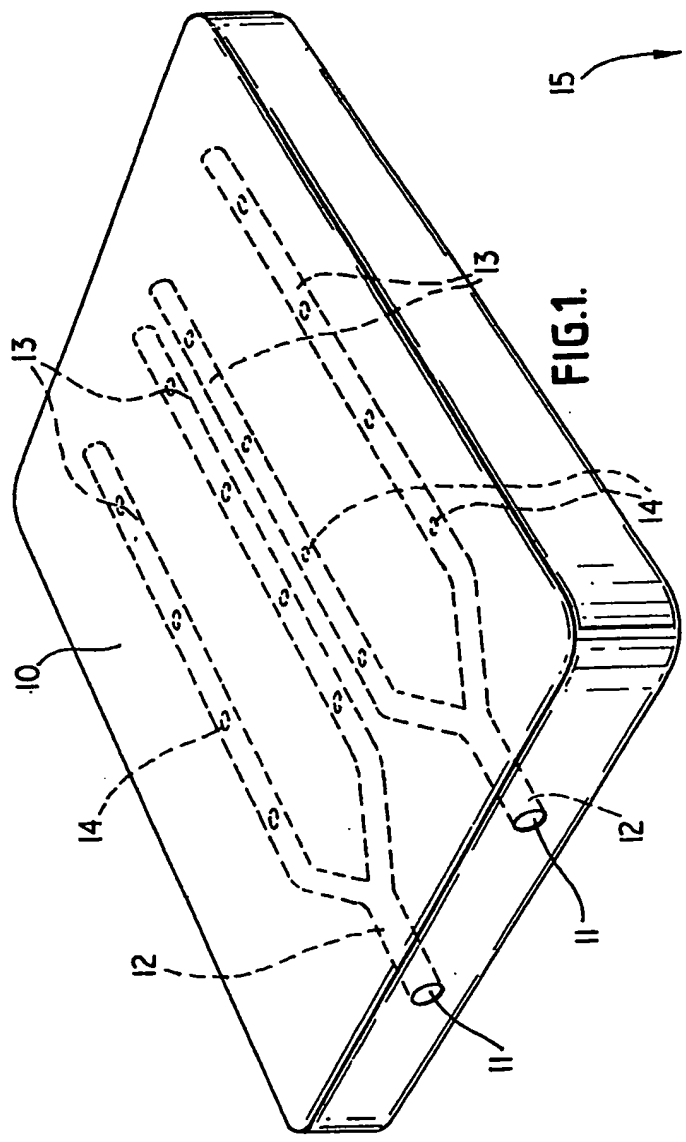


FIG. 1.

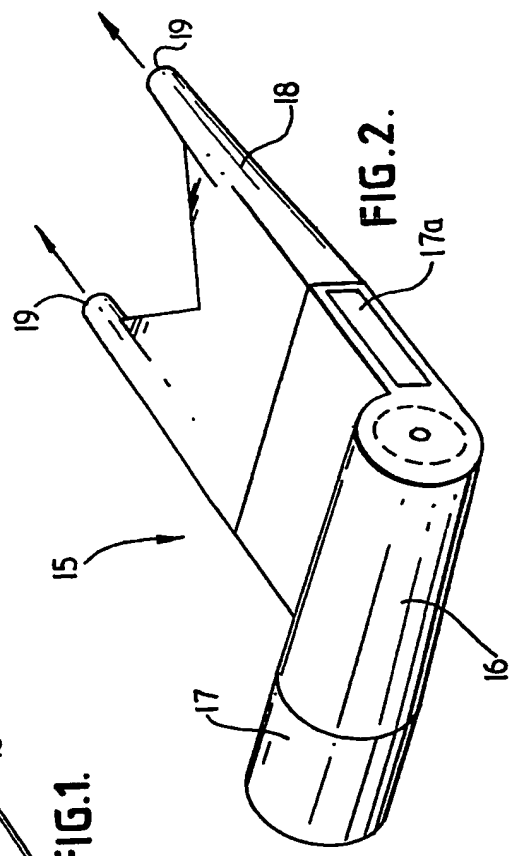


FIG. 2.

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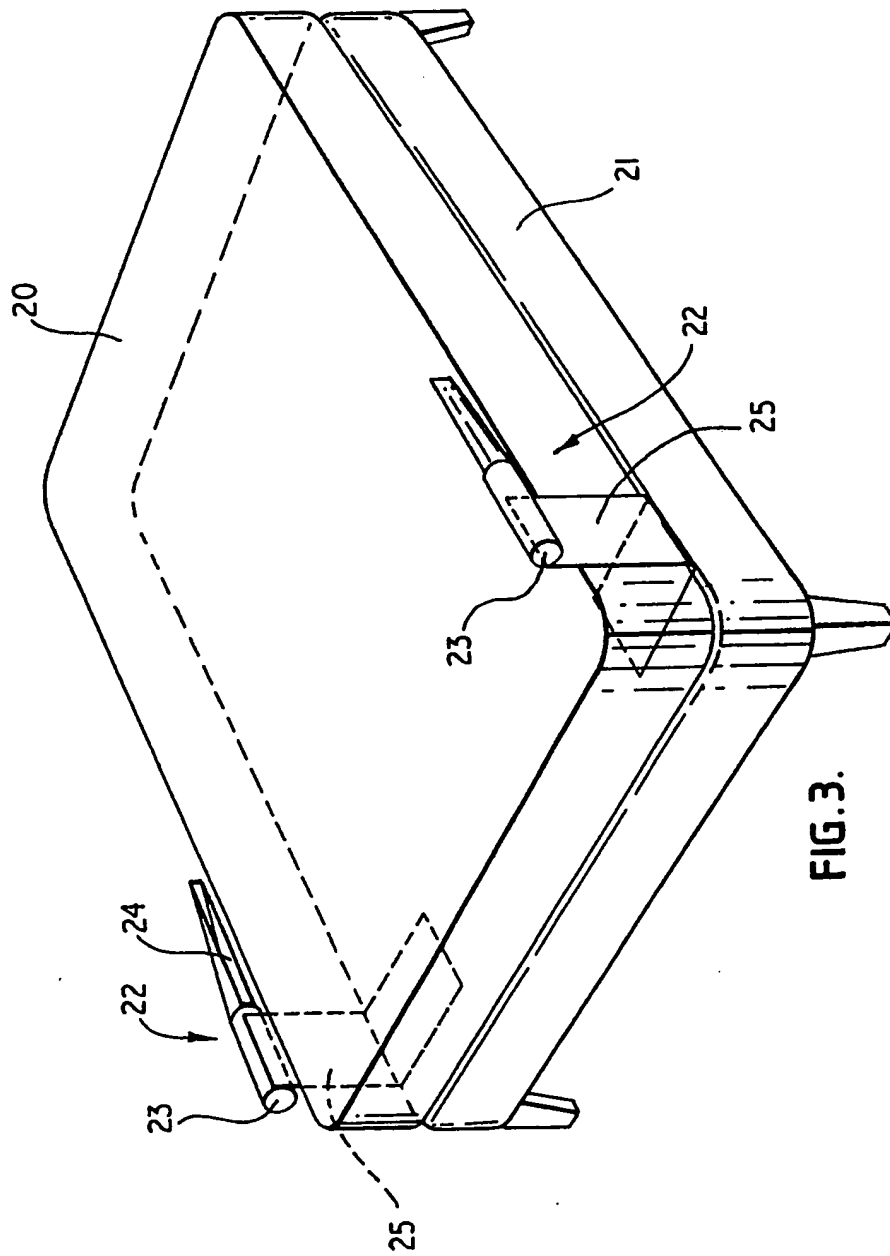


FIG. 3.

## SPECIFICATION

## Heating devices

- 5 The invention relates to heating devices and particularly to devices for use in the heating of beds.

According to the invention a bed heating device comprises means to provide a supply of heated air, and guide means to direct the heated air into a bed to heat the bed.

- 10 The means to provide a supply of heated air may comprise a fan arranged to direct air into a housing containing one or more heaters and blow the air after heating out of one or more outlets from the housing, the outlets leading to the said guide means.

Preferably the or each heater comprises an electrical heating element.

- The guide means may comprise a mattress or other bed base having one or more inlets to receive heated air from the supply, at least one passage extending through the mattress or other bed base from the inlet or inlets, and a plurality of outlets from the or each passage spaced apart over the upper surface of the mattress or other bed base to distribute heated air within the bed.

- Alternatively the guide means may comprise one or more ducts which are arrangeable on or in the bed, the or each duct having an inlet to receive heated air from the supply, and an outlet shaped to direct heated air into the bed.

- Preferably there are two ducts arranged for attachment to the foot of the bed, one at each side of the bed.

- The outlets of the ducts may be shaped to cause the heated air to fan out over the bed.

A further possibility is for the guide means to comprise a porous bag or envelope as an under or overcover for the bed. The bag or envelope may be inflatable.

- 40 The invention includes a bed when fitted with a bed heating device according to the invention.

By way of example, specific embodiments of the invention will now be described, with reference to the accompanying drawings, in which:—

- 45 Figure 1 is a perspective view of the guide means of a first embodiment of heating device according to the invention;

- Figure 2 is a perspective view of the means to provide a supply of heated air of the first embodiment; and

- 50 Figure 3 is a perspective view showing the guide means of an alternative embodiment of heating device according to the invention.

- The guide means illustrated in Figure 1 comprises a bed mattress 10 having a pair of hot air inlets 11. Each inlet communicates with a passage 12 and each passage 12 has two separate branches 13 extending along the length of the mattress. Each branch 13 has a plurality of outlets 14 which communicate with the upper surface of the mattress.

- 60 The mattress shown in Figure 1 is used in conjunction with the hot air supply shown in Figure 2. The

- supply has a housing 15 having three parts. There is a frustoconical part 16 which houses a fan. The fan is driven by an electric motor 17 arranged at one end of the part 16 and the fan, when driven, draws air in through the other end of the part 16. The fan directs air into a second, rectangular part 17 of the housing which contains a bank of electrical heating coils. As the air from the fan passes over the heating coils it is heated and it then passes into the third part 18 of the housing which comprises a pair of fishtail-shaped members which gather the air passing over the heating elements and direct the heated air to two outlets 19.

- 75 In use the outlets 19 are connected to the inlets 11 by means of suitable pipes or ducting and when the heating coils and the fan are switched on, a supply of hot air percolates through the bed on which the mattress 10 is placed, warming the bed in a very effective manner.

- It will be appreciated that with the embodiment of guide means shown in Figure 1, it is necessary to provide a new form of mattress in order to heat a bed. However Figure 3 illustrates an embodiment of guide means which may be fitted to the existing mattress 20 of an existing bed 21. The guide means comprises a pair of ducts 22. Each duct has an inlet 23 for connection to one of the outlets 19 of the device shown in Figure 2, and each duct also has a fishtail-like outlet 24 which is arranged to cause the heated air to fan out and spread over the upper surface of the mattress 20. Each duct has an L-shaped bracket 25 secured thereto so that the ducts can be positioned at the foot of a bed as shown in Figure 3, or in any other desired position, one duct at each side of the bed. The lower part of the brackets 25 is trapped between the mattress 20 and the bed 21 to hold the ducts in position. The bed can then be made up in the conventional manner so that the bed-clothes cover the ducts. When hot air is supplied to the ducts from the device shown in Figure 2 the hot air spreads out within the bed underneath the bed-clothes, thereby warming the bed.

- 105 Not only do the devices shown in the foregoing embodiments enable beds to be heated very effectively, they also ensure that the beds are heated safely. In contrast to the position with electric blankets, the electrically operated hot air supply shown in Figure 2 can be positioned well away from the bed itself, and indeed in a different room if desired. The only connections to the bed itself comprise pipes carrying the hot air. There is thus no risk of an electric shock or a fire within the bed. The devices thus have a distinct advantage over electric blankets which cannot be used with safety in conjunction with hot water bottles, which might leak, or with incontinent persons.

- 120 The invention is not restricted to the details of the foregoing embodiments. For instance the heating unit may be an integral part of a new bed. For safety the heating unit may be totally enclosed in a fireproof and waterproof enclosure.

The heating and fan units may be remotely con-

trolled, for example conveniently from the bedside. The controls may for example provide a timed start, slumber-time, (i.e. switch off after a desired period of sleep), and thermostatic control.

- 5 The invention may also be used to provide a bed cooling device, by not energising the heating elements and using only the fan. This may be useful for hot nights, or for use in warmer climates and in connection with certain medical conditions.

#### 10 CLAIMS

1. A bed heating device comprising means to provide a supply of heated air, and means to direct the heated air into a bed to heat the bed.
2. A bed heating device as claimed in Claim 1, in  
15 which the means to provide a supply of heated air comprises a fan arranged to direct air into a housing containing one or more heaters and blow the air after heating out of one or more outlets from the housing, the outlets leading to the said guide means.
- 20 3. A bed heating device as claimed in Claim 2, in which the or each heater comprises an electrical heating element.
4. A bed heating device as claimed in any one of the preceding claims, in which the guide means  
25 comprise a mattress or other bed base having one or more inlets to receive heated air from the supply.
5. A bed heating device as claimed in Claim 4, in which there is at least one passage extending through the mattress or other bed base from the  
30 inlet or inlets, and a plurality of outlets from the or each passage spaced apart over the upper surface of the mattress or other bed base to distribute heated air within the bed.
6. A bed heating device as claimed in any one of  
35 Claims 1 to 3, in which the guide means comprise one or more ducts which are arrangeable on or in the bed, the or each duct having an inlet to receive heated air from the supply, and an outlet shaped to direct heated air into the bed.
- 40 7. A bed heating device as claimed in Claim 6, in which there are two ducts arranged for attachment to the foot of the bed, one at each side of the bed.
8. A bed heating device as claimed in Claim 7, in which the outlets of the ducts are shaped to cause  
45 the heated air to fan out over the bed.
9. A bed heating device as claimed in any one of Claims 1 to 3, in which the guide means comprise a porous bag or envelope as an under or over-cover for the bed.
- 50 10. A bed heating device as claimed in Claim 9, in which the bag or envelope is inflatable.
11. A bed heating device constructed and arranged substantially as herein described, with reference to Figures 1 and 2, or Figure 3, of the  
55 accompanying drawings.
12. A bed when fitted with a bed heating device as claimed in any one of the preceding claims.